THYROID HORMONE DISRUPTING CHEMICALS IN SEA BASS (*DICENTRARCHUS LABRAX*) FROM EUROPEAN COASTS

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Polychlorinated biphenyls (PCBs) and organochlorine pesticides like Dichloro-Diphenyl-Trichloroethane (DDTs), Hexachlorocyclohexanes (HCHs), aldrin, dieldrin and trace elements (Cd, Cu, Se, Pb, Zn and Hg) were analysed in the muscle of sea bass (*Dicentrarchus labrax*) sampled in coastal regions near several important European river mouths (Gironde, Charente, Loire, Seine and Scheldt). These potential endocrine disrupting chemicals were present in European coastal waters. Even if their concentrations were well below the Maximum Residue Limits set by the governments, they induced alterations of the endocrine system.

We established correlations between contaminant concentrations and effects on the thyroid system in sea bass. The contaminants induced modifications of the metabolic pathways of thyroid hormones and enhanced thyroid hormone synthesis. The activity of T4 Outer Ring Deiodinase was increased, that leads to an intensified conversion of thyroxine (T4) to its more biologically active form triiodothyronine (T3). Meanwhile, the activity of T4 sulfatation was reduced, that leads to a lowered biliary excretion of thyroid hormones. The modified metabolic pathways of the thyroid hormones can be interpreted as a tool to homeostatically maintain the thyroid hormone status. Of all tested compounds, the higher chlorinated PCBs seemed to be the most implicated in this perturbation.

The nature of thyroid hormone synthesis, signalling and regulation is highly conserved among vertebrates. Although we cannot extrapolate thyroid toxicity data directly from one species to another, these environmental factors may well affect thyroid function in other species, including humans.

*The first author dedicates this abstract to the freshly born Adèle and Côme. Congratulation to the parents!